004.0025X1
SF1658C1

REMARKS

Claims 1-28 are pending in the application, claims 1-25, 27 and 28 are rejected, and claim 26 is objected to.

Claims 1, 11, 14, 15, 21 and 25 have been amended, and Claims 7-10, 16-20, 24, and 26 have been cancelled.

I. CLAIM REJECTION UNDER 35 USC § 102

Claims 1-5, 11-12, 14 and 16-24 are rejected under 25 USC § 102 (b) as being clearly anticipated by Sandhu et al. Examiner states that Sandhu et al. discloses an apparatus for planarizing a front surface of a wafer comprising all the subject matter set forth in Applicants' claims above. With this, Applicants respectfully disagree. Applicants' original independent claim 1 clearly recites "... a multizone carrier... comprising a plurality of concentric, independently pressurizable plenums, each of said plurality of plenums capable of containing a different, uniform pressure...". No such structure is shown in Sandhu et al. Sandhu et al. utilizes a polishing head that includes one or more pressure applicators that are individually controllable to move over a range of positions from a retracted position to an extended position. The applicators engage the surface of the semi-conductor wafer to apply multiple isolated localized pressures in individual regions of the wafer. These pressure applicators may comprise a solenoid or servo-mechanism or alternatively, an "I"-shaped piston slidably mounted within a hollow cylindrical housing. A spring biases the system to its retracted position. The upper opening is coupled to a tube or conduit to provide fluent communication between the conduit and the housing chamber. Fluid is transferred under controlled pressure through the conduit

against the piston so as to overcome the spring bias and cause desired movement of the piston. The applicators are individually coupled to an applicator controller, and the polishing rates of individual regions across the wafer can be independently controlled to affectuate a desired polishing result. Nowhere does Sandhu et al. teach the use of a mulitzone carrier having a plurality of independently controllable pressure plenums.

A plenum is generally considered to be a condition, space or enclosure in which air or other gas is at a pressure greater than that of the outside atmosphere. Websters Revised Unabridged Dictionary, Copyright 1996, 1998 MICRA, Inc. defines a plenum as an enclosed space in which the air pressure is higher than outside. Sandhu et al. teaches a polishing head having one or more pressure applicators, and while Sandhu et al. teaches that a controller can make independent adjustments to one or more of the pressure applicators on the head, it does not teach a carrier comprised of a plurality of plenums.

Notwithstanding the above, Applicants' independent claim 1 has been amended to clearly recite that the multizone carrier comprises a plurality of concentric independently pressurizable plenums, each plenum having a uniform pressure therein. Claim 1 has further been amended to indicate the control system varies the pressure in at least one of the plurality of plenums. Since no such structure is shown or taught in Sandhu et al., it is respectfully submitted that Applicants' amended independent claim 1 distinguishes over the Sandhu et al. reference. Claims 2-5 are believed to properly depend, either directly or indirectly, from Applicants' amended independent claim 1 and are therefore likewise believed to distinguish over the Sandhu et al. reference.

Applicants' independent claim 11 has been similarly amended to recite that the multizone carrier has a plurality of concentric, independently controllable pressure plenums and that the control system adjusts the pressure in each of the concentric plenums. Since, as

described above, Sandhu et al. teaches no such structure, it is respectfully submitted that Applicants' independent claim 11 is believed allowable. Dependent claims 12 and 13 are believed to properly depend, either directly or indirectly, from Applicants' amended claim 11 and are believed allowable therewith.

Applicants independent claim 14 has likewise been amended to recite a multizone carrier having a plurality of concentric, independently controllable pressure plenums and a control system in communication with the temperature probe and the multizone carrier for adjusting the pressure in each of the independently controllable pressure plenums. Since, as discussed above, Sandhu et al. does not teach this structure, it is respectfully submitted that Applicants' independent claim 14 is allowable.

Claims 16-20 have been cancelled.

Applicants' independent claim 21 has been amended to recite that the carrier in which the wafer is mounted for continuously pressing against a working surface comprises a plurality of concentric independently pressurizable plenums, and the step of altering the planarization process has now been amended to recite "adjusting the pressure in at least one of said plurality of plenums." For the reasons described above, it is respectfully submitted that Applicants' amended independent claim 21 now distinguishes over the Sandhu et al. reference and is therefore believed allowable. Dependant claims 22 and 23 are believed to properly depend from Applicants' amended claim 21 and are believed allowable therewith.

Claim 24 has been cancelled.

II. CLAIM REJECTION UNDER 35 USC § 103

Examiner rejects claims 25 and 27-28 under 35 USC § 103(a) as being unpatenable over Sandhu et al. However, Examiner has stated that claim 26 is objected to as being dependent

upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. To this end, Applicants' independent claim 25 has been amended to include the steps recited in original dependent claim 26, and dependent claim 26 has been cancelled. Therefore, it is respectfully submitted that Applicants' amended independent claim 25 is allowable. Dependent claims 27 and 28 are believed to properly depend, either directly or indirectly, from Applicants' independent claim 25 and are believed allowable therewith.

Examiner rejects claim 6 under 35 USC § 103(a) as being unpatenable over Sandhu et al. in view of Brievogel et al. Examiner states that to substitute an orbital motion generator for the rotational motion generator disclosed in Sandhu et al. would have been obvious in view of Brievogel et al. Dependent claim 6, however, is believed to properly indirectly depend from Applicants amended independent claim 1 and is therefore believed allowable for the reasons advanced above. That is, the Brievogel et al. reference does not disclose a carrier having a plurality of concentric independently pressurizable plenums each of which are capable of containing a different, uniform pressure therein and a control system in communication with an interferometer and a multizone carrier for varying the pressure in at least one of the concentric plenums.

Examiner rejects claims 7 and 9 under 35 USC § 103 (a) as being unpatentable over Sandhu et al. in view of Perlov et al. and rejects claim 10 under 35 USC § 103 (a) as being unpatentable over Sandhu et al. in view of Perlov et al. and further in view of Brievogel et al. Claims 7-10 have been cancelled.

Examiner rejects claim 13 under 35 USC § 103 (a) as being unpatentable over Sandhu et al. in view of Swedek et al. Examiner states that to use a second light source and detector for better end point precision would have been obvious in view of Swedek et al. Swedek et al.,

however, does not supply the deficiencies pointed out above with respect to the Sandhu et al. reference, and since claim 13 is believed to properly depend from Applicants' amended independent claim 11, it is believed allowable therewith.

Examiner rejects claim 15 under 35 USC § 103 (a) as being unpatentable over Sandhu et al. in view of Li et al. Examiner states that Li et al. discloses the conventional use of an eddy current sensor for monitoring the polishing state of a work piece, and to substitute such asensor for the optical system of Sandhu et al. would have been obvious. Applicants' independent claim 15 has been amended to indicate that the multizone carrier has a plurality of concentric independently controllable pressure plenums and that the control system is in communication with the eddy current probe and the multizone carrier for adjusting the pressure in each of the plenums. As discussed previously, Sandhu et al. neither teaches nor suggests such structure. Therefore, it is respectfully submitted that Applicants' amended independent claim 15 distinguishes over and is unobvious in view of the Sandhu et al. or Li et al. references taken singly or in combination.

CONCLUSION

In view of Applicants' amendments and remarks, it is respectfully submitted that Examiner's rejections under 35 USC § 102 and 35 USC § 103 have been overcome. Accordingly, Applicants respectfully submit that the application, as amended, is now in condition for allowance, and such allowance is therefore earnestly requested. Should the Examiner have any questions or wish to further discuss this application, Applicants request that the Examiner contact Applicants' attorneys at 480-385-5060.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent

004.0025X1
SFI 658C1

abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

INGRASSIA FISHER & LORENZ

Dated: 9/9, 2003

By: _____
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